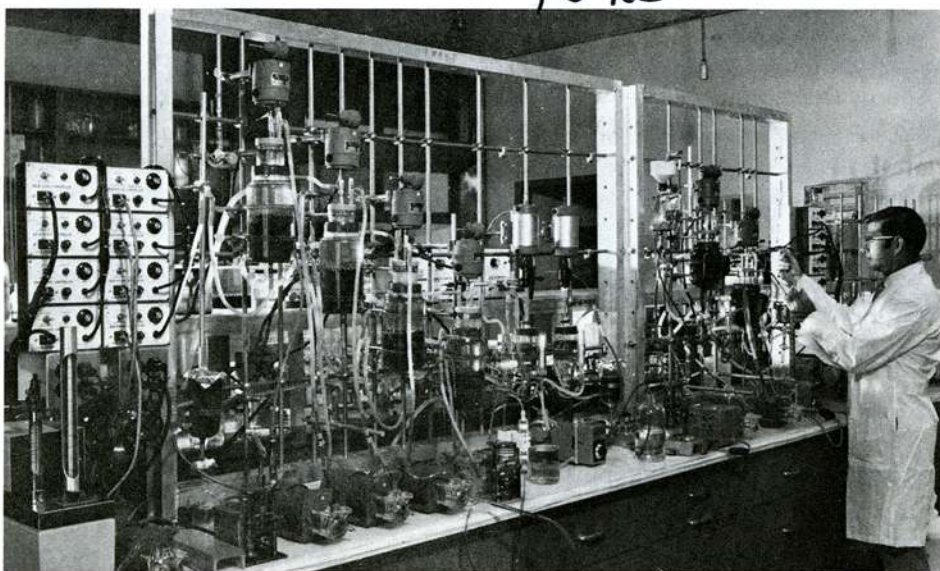


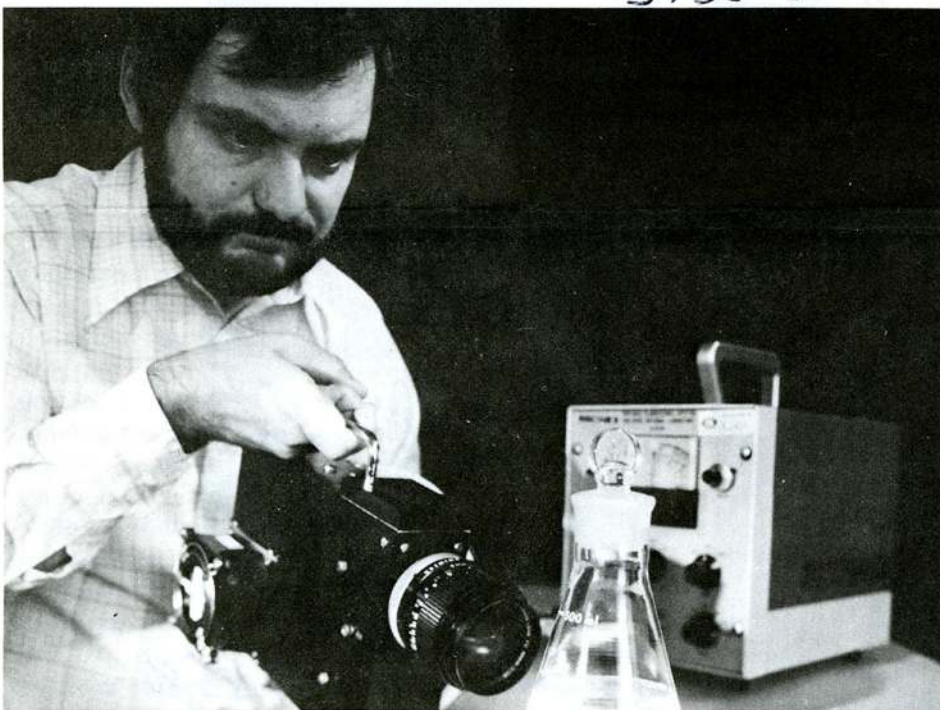
Nuclear Division News

● Vol. 11/No. 19 ● September 18, 1980

Most significant technology advances for 1980 cited



A PROCESS FOR RECOVERY OF URANIUM from wet-process phosphoric acid, one of the principal ingredients used in manufacturing fertilizer, has the potential for significantly extending U.S. uranium-ore production. Shown in the laboratory where the process (called DEPA-TOPO) was demonstrated is one of the principals, Fred J. Hurst of the ORNL Chemistry Division.



THE PORTABLE FLOURESCENCE SPOTTER is demonstrated by the principal developer, Daniel D. Schuresko, research staff member in the ORNL Chemical Technology Division. The hand-held instrument provides for extremely sensitive real-time detection and measurement of fluorescent aromatic polynuclear hydrocarbons (PNA's) and other carcinogenic and mutagenic compounds that are inherent in coal liquefaction and gasification processes.

In this issue...

As the four Nuclear Division facilities gear for the 1980 United Way campaign, Oak Ridgers kicked off their campaign September 12 at the Civic Center. That story is on page 3.

Other features in this issue:

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Four innovative Nuclear Division developments have been named winners of "I-R 100" awards for the year's 100 most significant "new technology" advances.

The awards recognize achievements by technical staff members at the Oak Ridge Y-12 Plant and ORNL.

The selection was announced by the magazine, "Industrial Research/Development," which will present the awards today (Thursday, September 18) in ceremonies at the Museum of Science and Industry in Chicago.

The four Oak Ridge winners in the annual competition are:

- A solar-absorbing coating demonstrated to withstand temperatures of more than 3500 degrees F (Y-12);
- A sensitive portable detector for potentially hazardous by-products of synthetic fuels production (ORNL);
- A unique particle blending-dispensing system that improves the uniformity of blended mixtures (ORNL); and
- A recovery process that significantly extends U.S. uranium-ore production without additional mining (ORNL).

"Plasmasorb" — High-Temperature Solar Absorbing Coating

"Plasmasorb" is a new and unique plasma-sprayed coating for high-temperature solar energy applications. It was developed by James M. Schreyer, Charles R. Schmitt and Leonard Abbatiello while members of the Development Division at the Oak Ridge Y-12 Plant. Schreyer and Schmitt also were members of a Y-12 group that won an "I-R 100" award in 1978 for "microsorb," a solar-selective carbon coating designed for residential solar collectors.

Unlike available solar energy absorbers tailored for low-temperature home, office and greenhouse applications, the "plasmasorb" coatings have been shown to withstand the highest temperatures expected in future solar electric generating stations and other large-scale receivers for power production and industrial heat.

The coatings, compounds of yttrium and boron and erbium and boron, have reached temperatures of up to 2000 degrees Celsius (3632 degrees F) without detrimental changes in their optical (solar absorbing) properties or physical integrity.

Their favorable characteristics, including good heat transfer to a

second medium, are due, in part, to the fact that the coatings are applied at temperatures near their melting points by a plasma torch, an instrument used to spray liquid metals. The plasma-sprayed coatings, applied to stainless steel, were tested under the most intense solar fluxes at the 30 KW White Sands Solar Test Furnace and did not flake off, discolor or change their solar absorbing properties.

The principal applications of "plasmasorb" will be in solar-power-tower receivers and solar furnaces which accumulate and concentrate solar energy from multiple reflectors as well as solar boilers, concentrators, parabolic collectors and space cells.

Portable Fluorescence Spotter

This state-of-the-art device is expected to contribute to industrial hygiene and worker protection in the emerging synthetic fuels industry. The instrument provides extremely sensitive real-time detection and measurement of fluorescent aromatic polynuclear hydrocarbons (PNA) and other carcinogenic and mutagenic compounds which are inherent in coal liquefaction and gasification processes.

Powered by battery or 110-volt a.c., the hand-held optics unit operates by emitting a collimated beam of intensity-modulated ultraviolet light of selected wavelength and detecting the induced emission from the fluorescent material. The spotter can detect fluorescence which is one percent as intense as background illumination in the wavelength band of interest.

Currently, PNA contamination in personnel and equipment is estimated by observing in a dark room the location and intensity of fluorescence excited by a hand-held "black light." In contrast, the ORNL-developed spotter precisely measures fluorescent contamination in units of a reference compound, provides 10- to 100-fold greater sensitivity, can be operated by untrained personnel in illuminated or darkened areas (and in direct sunlight), and discriminates between classes of aromatic compounds.

The device can be used to determine the effectiveness of various industrial hygiene practices for preventing skin contamination by PNA's, and to monitor the completeness of skin cleanup procedures after accidental exposure. It also can monitor leaks of corrosive or environmentally dangerous chemicals from high

(Please see page 8)

7054-80



▲ Workmen prepare the frame for its journey to the second floor.

A giant spider (frame) for Fusion's newest test facility

Work on the Large Coil Test Facility (LCTF), to be operated by ORNL's Fusion Energy Division, took another big step forward recently with the installation of the 22-ton "spider frame" in the facility's vacuum tank.

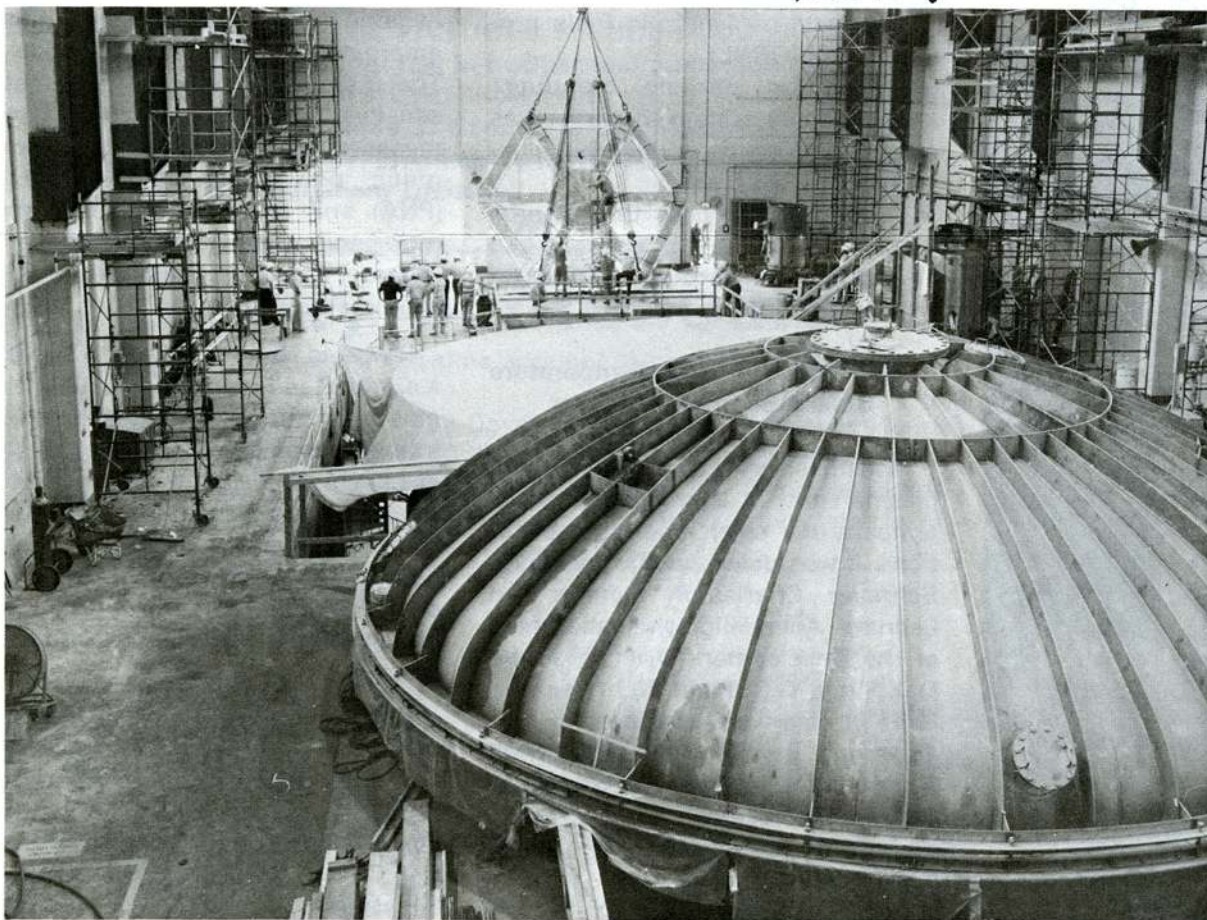
The LCTF, under construction in Building 9204-1 at Y-12, will be the world's first facility for testing and evaluating the very large (12 by 15 feet) superconducting electromagnetic coils of the type that will be needed for future fusion power reactors. Preliminary testing will begin in 1981.

The spider frame, also referred to as the gravity base, will serve as the foundation for the 43-ton "bucking post" structure that will help hold the magnet coils in place for testing. Its installation, illustrated by the photos here, was a two-day operation that involved lifting the frame from the ground floor to the second floor and lowering it carefully into the tank.

The next milestone in the life of the LCTF will come within the next few weeks, when the bucking post—which is now undergoing the rigorous cleaning process necessary for components that will operate in a vacuum—is installed.

The frame is lifted... ▶

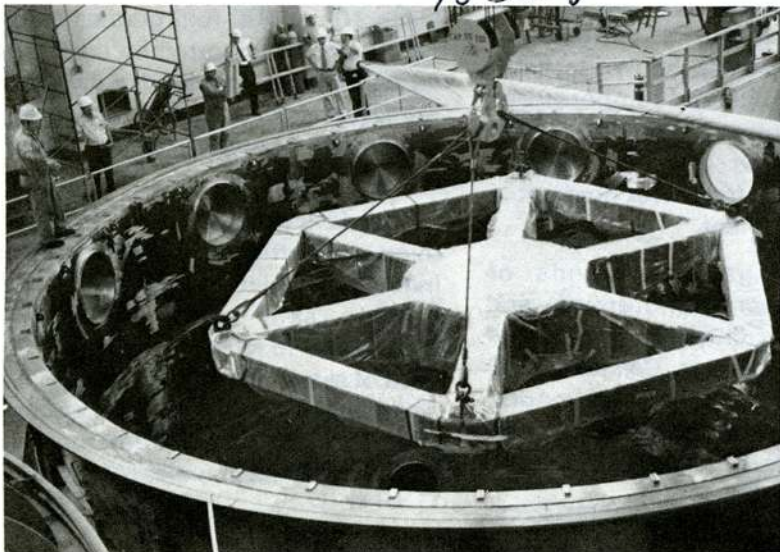
7058-80



...and guided through the opening between floors. ▼ 7056-80



7055-80



▲ A view across the bay: the spider frame rests immediately behind the vacuum tank, which is draped with canvas. In the foreground is the tank's massive stainless steel cover.

▶ The frame begins its 40-foot descent into the tank.



Isaacs opens Division United Way campaign

"As we grow, mature, care and share, through programs like the United Way, the greatest benefit is to ourselves." With these words, keynote speaker Fred G. Isaacs officially opened the Division's 1980 United Way campaign during the kickoff meeting September 12 at the Oak Ridge Civic Center.

Isaacs, president of the Athletic Goods Association in Cosby and a former football coach, also spoke at Division kickoff meetings in 1976 and 1978. He has served on the board of directors for six different United Way agencies and has addressed more than 20 campaign meetings in 16 cities.

Calling the Carbide United Way program a "flagship" for other groups in the area, Isaacs complimented the employees on their continued support of the campaign through the years.

He mentioned that Division contributions had increased steadily in the years that he has been involved with the campaign (from some \$500,000 in 1976, to over \$750,000 in 1978, to a goal of \$893,000 this year). "About the only thing I know of that has risen

faster is the cost-of-living index," Isaacs said, adding that he hoped employees would continue their support of the program.

On a lighter note, Isaacs presented General Campaign Chairman Keith G. Kahl with a green ("to remind people of what we're trying to collect") football jersey, explaining that players who have performed exceptionally well are often honored by having their jerseys retired. "However," Isaacs said, "if we don't reach this year's goal, we're going to retire Keith's jersey with him in it!"

Paul R. Vanstrum, Nuclear Division Vice President, also addressed the crowd of over 600 solicitors and fund workers, asking them to carry the United Way message to their fellow employees.

Others present on the speakers' platform were facility campaign chairmen Robert E. Cable, ORGDP; William H. Dodson, Y-12; and William O. Harms, ORNL.

Bargaining-unit employees were represented by John A. Hall, member of Oil, Chemical and Atomic Workers International Union; David E. Melhorn, president, International Union, United Plant Guard Workers of America; John E. Davidson, representative of International Guards Union of America; and Robert G. Keil, president, Atomic Trades and Labor Council. Employees from these groups have been responsive supporters of the United Way campaign and have appointed their own coordinators and solicitors. A substantial part of the goal each year is met through the efforts of these employees.

This year's kickoff meeting gave Division employees the opportunity to observe some of the many ways that the United Way contributes to their communities. Representatives of nearly seventy agencies from the six-county (Anderson, Blount, Knox, Loudon, Morgan and Roane) area attended the meeting, presenting brochures, charts, photo displays, videotapes and demonstrations.

Question Box

Why are openings advertised out-of-town and not locally?

QUESTION: I was vacationing recently with relatives in another state. My sister-in-law works for an employment service. She told me Y-12 had openings for machinists, electricians and instrument repairmen. How come we never hear anything in this area about such openings?

ANSWER: The Nuclear Division does not advertise job openings within the local area. It has been our experience over many years that such advertising is unnecessary. We normally have many more local job applicants than we have jobs available; for example, in 1979 we processed 20,644 applications in filling 1,595 job openings.

Craft skills such as those to which you refer in your question, however,

are in generally short supply and we sometimes find it necessary to advertise in various job markets where there have been layoffs or where there is an excess in order to meet divisional needs. Our Central Employment Office will accept applications at any time. Anyone interested in applying for work in the Nuclear Division should submit an application to that office.

Shrubbery expenditures

QUESTION: It is my impression that the Fusion Energy Division in 9201-2 spent \$40,000 on a flower box and an equal amount on flowers and shrubbery. Is this correct?

ANSWER: No. The concrete preparation work and complete landscaping of that area cost less than half that much.

Save Energy/Share the Ride

Y-12 PLANT

TWO CAR POOL MEMBERS from Kingston to any portal, straight day. Howard Horne, home phone Kingston 376-7960, plant phone 6-0517.

JOIN CAR POOL from West Hills Village, Middlebrook Pike section, to North or East Portal, flexible hours. Kris, plant phone 4-0637, home phone Knoxville 584-5144.

VAN POOL MEMBER from Lenoir City to all portals, 8-4:30. M. E. Keeble, plant phone 4-0245, home phone 986-2470 (Lenoir City).

VAN POOL RIDERS from Pleasant Ridge, Cumberland Estates Shopping Center, to all portals to Pine Ridge, 7:30-4 shift. Larry Bohanan, plant phone 4-2827, home phone Knoxville 637-9874.

FORMING VAN POOL from Cumberland Estates, Knoxville, to any portal, 7:30-4:00. Henry Beaman, plant phone 4-3891; home phone 588-8022.

RIDE from Wright Road or Oak

Ridge Highway, Karns Community, to North Portal, 7:30-4:00 shift. E. G. Laggis, plant phone 4-1966, home phone Knoxville 947-6408.

ORNL

CAR POOL MEMBERS from West Knoxville to East Portal. J. W. Nave, plant phone 4-4485, home phone Knoxville 690-4395; or J. W. Sims, 4-5926, or 693-8829.

VAN POOL RIDERS from West Knoxville (Bearden to Farragut area) to any portal, 8-4:30. Dean Treadway, plant phone 4-6580; home phone 584-4879.

ORGDP

VAN POOL RIDERS from Karns, Oak Ridge Highway and Solway areas to Portals 2 or 5, 7:45 to 4:15 shift. Tom Lemons, plant phone 4-8159, home phone Knoxville 947-8959.

RIDERS from Lenoir City to Portals 1 or 2, 7:45 to 4:15 shift. Barbara Coppin, plant phone 4-8719, home phone Lenoir City 986-6681.



ISAACS PRESENTS JERSEY to Campaign Chairman Keith G. Kahl.



EXAMINING UNITED WAY AGENCY LITERATURE at the kickoff meeting were Roxanne Sadler (left), ORGDP Enrichment Technology; and Helen Corbett, ORNL Metals and Ceramics.



A look at longevity

by T. A. Lincoln, M.D.

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 21, Y-12, or call the news editor in your plant, and give him or her your question on the telephone.)

In the present controversy over periodic health evaluations, cynics say that lifetime health experience is largely predetermined. One's genetic endowment defines the raw material, and environmental influences determine what will happen to it. Is the natural life span rigidly defined? Can a person appreciably alter his or her health expectation by conscious effort?

In a recent article in the New England Journal of Medicine, Dr. James F. Fries of the Stanford University Medical Center concluded that the natural length of life is fixed. The average life span has increased to 73 years from about 47 years at the turn of the century. The increase has occurred primarily because of a reduction in premature death rates, particularly in the first five years of life. The improvement in life expectancy rates leveled off in the 1950's, but it has taken an upward turn in the past 10 years.

The shape of the survival curve has changed drastically since 1900.

More and more people survive childhood and manage to avoid premature death between ages 30 and 70. At about age 70, there is a sharp downward slope to the survival curve. If all premature causes of death were eliminated, the average age at death would probably be close to 85 years.

Developing strong reserves

There is no evidence to suggest that developments in the last century have changed the natural limit of life span. In the past 80 years, average life expectancy from birth increased at a yearly rate of 0.33 years, and life expectancy from age 65 increased by 0.05 years. During the past 10 years, life expectancy from birth has increased yearly at a rate of 0.33 years, and life expectancy from age 65 has increased by 0.12 years. These curves intersect in the year 2018 at an average age of 85.6 years. Americans, therefore, have nearly reached that "ideal." In 1980, the average life expectancy at birth was

only 12 years short of the theoretical limit, and violent deaths accounted for 3 of those 12. Thus, we are only 9 years short of attaining the 85-year mark.

Deaths that occur before the "ideal" age are largely caused by chronic diseases that result from premature loss of organ reserves. A person who has had good nutrition and no serious infections should have strong reserves by the age of 10. There should be approximately 300 million air sacs in the lungs; about 2,400,000 nephrons (filters) in the kidneys; and a wide-open circulation system. Only a small portion of these reserves is required to sustain life under normal circumstances.

Life expectancy would increase

Exposure to environmental toxins and infections gradually decreases these reserves so that they run out or become vulnerable to more rapid decay. Smoking takes a heavy toll on air sacs, thus predisposing a person to fatal heart attacks and lung cancer. Approximately 20 percent of all cancer deaths are due to smoking. Alcohol consumed in excess uses up the reserves in the central nervous system, GI tract and bladder. Obesity predisposes a person to cancer, diabetes and hypertension.

According to statisticians, the number of years gained by a newborn child if there were a 30 percent reduction in major cardiovascular diseases and malignant neoplasms would be only 1.98 and 0.71 years, respectively. Nevertheless, premature deaths due to cancer, cardiovascular disease and accidents are still fairly common. If they could be reduced, the average life expectancy would generally increase and come closer to the theoretical natural limit.

The decline in the number of strokes and coronary heart attacks in recent years has been impressive. It is much more apparent in persons with a college education and a high standard of living. Preventive programs in this country are apparently helping. The reduction in adult smoking in this group over the past 10 years has been substantial. Better nutrition, more exercise, less alcohol abuse and possibly other factors are having a favorable effect. Several recent long-range studies have shown that people with good mental health suffer less from degenerative diseases. Being better able to plan one's life and obtain help when needed may have a favorable impact. In general, stress diseases are more prevalent among the poor and less educated.

For those who might worry about a massive increase in the number of elderly persons occupying nursing homes and awaiting death, remember that with good organ reserves, a person may remain reasonably self-sufficient until a short time before natural death. Methods of decreasing the toll of mental deterioration are being studied, and there is reason for cautious optimism.

Yes, natural life probably has a fixed length. Abusing one's organ reserves appreciably shortens the prospects of reaching that expectancy. If one could abuse himself or herself and then die suddenly at 75 rather than 85, some think little would be lost. Unfortunately, too many people will succumb between 50 and 65, and often from long, painful and disabling illnesses. Eliminating degenerative diseases to gain the theoretical average life expectancy of 85 is going to be increasingly more difficult as we get closer to our goal.

Thanks to you, it works...

Paducah's Breidert 'sets standard' for Red Cross

Elmer Breidert, head of Paducah's PTP and Systems Technology Department, was honored recently by the McCracken County Red Cross Chapter board of directors. In a resolution presented to Breidert at the Chapter's 1980 annual meeting, the Board described Breidert as a "standard for all volunteer Red Cross workers." It went on to say that "no other person in the history of the chapter has done more for Red Cross."

Breidert has been water safety chairman for the chapter for the past 25 years. Beginning in 1955, he became a water safety instructor and later a water safety instructor trainer. He also instructed handicapped swimmers. He has conducted workshops and swim programs and has supervised advanced lifesaving classes, lifeguard training and water aide classes.

For this outstanding public service of more than 8,000 volunteer hours, the Chapter presented Breidert a 15-

year pin, the National Certificate of Merit and the Service Medal from Red Cross.

According to Breidert, all of this stemmed from his early childhood experiences along the Meramec River near St. Louis. "I was 11 years old and my parents had just bought a cottage on the Meramec River, one of the most dangerous rivers in the



Elmer Breidert

country at the time. My dad laid down the law—either I learned to swim or I didn't get in the river," he said.

Since then, swimming and helping others learn has been a part of Breidert's life. He became a competitive swimmer in high school and college in Missouri, a lifeguard in the Navy and ultimately the backbone of the local Red Cross Chapter water safety program. And that's not all. Breidert added to his public volunteer work volunteer swim instruction for adults and children of the Paducah Plant for more than 10 years.

During his years of instruction, Breidert said he has tried to teach his students not to be afraid of water, but to love it, like he has since those days on the Meramec. He adds that swimming means more than fun to him. "It aids health, is a lifesaving technique and knows no limitations," he said.

The best time to learn to swim, according to Breidert, is at seven or eight years old. "If they want to learn," he added quickly.

Breidert is not an advocate of the current trend to teach infants to swim. "They learn reaction, not skills. They don't know their limitations and are likely to just plunge in anywhere, if they like the water," he said.

Youngsters, he feels, should become familiar with the water by playing in the wading pool. "Let them learn to like it so they won't be afraid to learn the swimming skills when they're seven or eight," he said.

Breidert obviously speaks from experience since all six of his children, aged 22 to 30, are water safety instructors. His oldest and youngest daughters are now teaching local Red Cross classes. It seems Breidert's penchant for swimming and service has become a family tradition. His wife, Dottye, gets into the act, too. Despite an unpleasant childhood water experience, she "has compassion for those who are afraid. She has a tremendous rate of success with them," Breidert said.

At Y-12 plant

Twelve named to new positions

Several promotions have been announced in the Y-12 Plant: Leland Boshears has been named an assembly supervisor trainee; Jerry W. Hash a maintenance supervisor; Howard A. Hutcheson a planner-estimator in Assembly; Edward G. Malenowsky a foreman in Assembly; David Medovich a supervisor in Maintenance; Melvin Passmore a staff engineer in Utilities; Jimmie L. Rooks and James C. Stutts Jr. foremen in Maintenance; Claud J. Tapscott Jr. an inspection supervisor; Stewart Taylor Jr. a supervisor in Maintenance; Cynthia W. Willis a development associate in Waste Processing; and Roy L. Young a planner-estimator in Assembly.

Boshears, a native of LaFollette, joined Union Carbide in 1969 after working with Spradlin Coal Company. He lives at 7012 Regency Road, Knoxville, and has two children, Kathryn and Robert.

Hash was born in Morristown and worked with American Enka prior to joining Y-12 in 1969. He is married to the former Debbie Henderson and they live at 3801 Proffit Lane, Knoxville. They have a son, Jerry Jr.

Hutcheson is a native of Anderson County and has attended Roane State Community College. He was employed by the White Stores and was in service before joining Union Carbide at ORGDP, where he participated in the sheet metal apprentice program. He lives at Route 2, Heiskell, with his wife, the former Dorothy Graham. They have a daughter, Mary.

Malenowsky, a native of Harriman, joined Union Carbide in 1970 after working in a hosiery mill and at the Coca-Cola Bottling Plant. He and his wife, the former Rhonda Young, live in Harriman. They have a son, Greg, and a daughter, Melodie.

Medovich, a native of Irvington, N.Y., attended St. Bonaventure University and served in the U. S. Army before coming to Y-12 in 1970. He lives at 208 Tusculum Drive, Oak Ridge, with his wife, the former Adele Yourconis. They have two daughters, Deborah and Pamela.

Passmore is a native of Chattanooga. He attended State Technical Institute before joining Union Carbide in 1969. He lives at 424 Valparaiso Road, Oak Ridge.

Rooks, a native of Mt. Holly, N.C., studied with Capital Radio Engineering Institute, and worked with Chrysler Corporation before coming to Y-12 in 1970. He is married to the former Janet Horst, and they live on Hack Road, Powell. They have a son, William, and a daughter, Robin.

Stutts was born in Florence, Ala., and has been in Y-12 since 1967. Prior to joining Union Carbide, he was with Myers and Whaley, Burlington Industries and in the U. S. Navy. He and his wife, the former Brenda Ogle, live at 6908 Heather Brook Drive, Knoxville. They have three children, Eric, Joe and Laura.

Tapscott is a native of Aledo, Ill., and worked with the Tennessee Valley

Authority before joining Y-12 in 1954. He also served in the U. S. Army. Mrs. Tapscott is the former Cassie Allen, and the couple lives at Route 1, Oliver Springs. They have four children, Jerry, Johnnie, Rhonda and Todd.

Taylor, a native of Memphis, joined Union Carbide in 1966 after working with the U. S. Post Office. He attended Tennessee State University and the University of Tennessee. Mrs. Taylor is the former Roselyn Chandler, and they live at 2445 Adams Avenue, Knoxville, with their children, Joy, Gay, Jan, Gordon, Cynthia and Stewart III.

Willis joined Union Carbide in 1979 after earning her BS in chemistry at Bennett College. A native of Greensboro, N.C., she lives at 9010C Grayland Drive, Knoxville.

Young was born in Maryville and attended college there. He is presently attending Roane State. Prior to joining Union Carbide in 1969, he served in the U. S. Army. His wife is the former Elfriede Fritsch, and they live at Route 3, Clinton. They have two children, Diana and Michelle.



Cody



Elliott

Two promoted at ORGDP

Two promotions have been announced in the Plant Protection and Security Division at ORGDP. Louis W. Cody has been promoted to a lieutenant and Charles C. Elliott has been named a senior engineering assistant in fire protection.

Cody, a native of Knoxville, attended the Military Police Investigation School before joining Union Carbide in 1977. He worked on the U.T. Police force and in the Knox County Sheriff's Department.

Married to the former Ernestine Jackson, Cody lives at 4601 Pleasant Ridge Road, Knoxville. They have three children: Dawn, Dejuan and Louis Jr.

Elliott was born in Lake City and attended Walker Academy of Medical Technology. He is currently going to Roane State Community College. Before joining Union Carbide in 1975, he worked at Continental Textiles Corporation.

He and his wife, the former Hazel Crawford, live at 121 Eighth Street, Lake City. They have a daughter, Leigh Anne.

Division Death



Mr. Spradlin

Joseph F. Spradlin Jr., Y-12 Fabrication Division, died August 30 at his 6334 Pleasant Ridge Road, Knoxville, home.

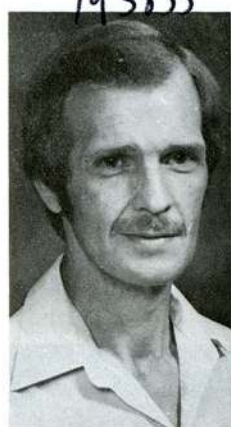
A native of Knox County, he served in the U. S. Coast Guard during World War II, and worked with Service Auto Parts before joining Union Carbide in 1950.

Survivors include his wife, Marie Nail Spradlin; a son, James C.; two daughters, Janet Spradlin and Joyce Ann Fielden; brothers, Alvin, Charles and Robert Spradlin; sisters, Anna Whaley and Katherine Mitchell; four grandchildren and one great-grandchild.

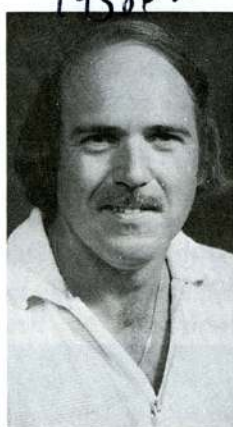
Funeral services were held at Weaver Funeral Home, with burial in Sherwood Memorial Gardens.



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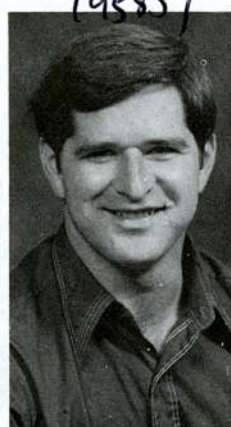
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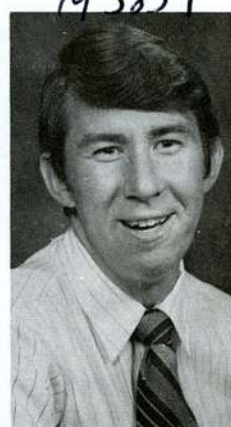
Hash



Hutcheson



Malenowsky



Medovich



Passmore



Rooks



Stutts



Tapscott



Taylor



Willis



Young

Golf tournaments

Y-12—

A three-way tie resulted in Y-12's final golf tournament of the year, staged at Bays Mountain. Dan Rowan, Jim Vance and Jim George all scored a 73 to take top honors. Second places went to Dave Everitt and John Schaich, both with 77.

In handicap scoring it was Dave Fortune, 76; and L. K. White, 74.

The second division went to Virgil Johnson, with a card of 83; Frank Morry, 86. E. C. Smith took handicap lows with 86; J. A. Moretz scored 87.

The third flight went to J. C. Nelson, 88; and Bud Moore, 89; while handicap lows went to Ralph Ownby, 88; and Dona Hunnicutt, 91.

Awards may be picked up at the Recreation Office, 9711-5.

ORGDP—

ORGDP played the Dead Horse Lake golf course for their final tournament of the year in the rain. Jim Barnes took the abbreviated competition with a 77; followed by C. W. Hawkins, 81. Handicap scoring was led by Bill Schwab, 86; and G. W. Lay, 87.

The second flight went to Charles Henegar, 87; and Eddie Acuff, 89. Mel Whited's 94 and Randy Howell's 97 took handicap lows.

Winners may pick up their bounty from Petty Collier, Room C-136, Building K-1001.

ORNL—

ORNL's final tilt of the golf season was held at Whittle Springs, and J. Connatser took the low score with 67. Homer Tuck carded a 72. In handicap scoring it was T. Akin, 72; and C. Buttram, 73.

The second flight went to H. Bryson, and J. P. Jackson, both with 82; while E. Hensley scored an 84. Handicap laurels went to H. Wiggins, 82; and W. VanPelt, 84.

The third flight belonged to T. Joseph, 86; and D. Underwood, 87. C. Wallace's 93 was low in handicap scoring, followed by G. Wilson, with 96.

Golf balls may be picked up from Debbie Walker, Room J-104, Building 4500N.

Volleyball. . .

The Recreation Department is now calling for Volleyball Teams. Two leagues will be offered this year: (1) Nuclear League (all men); and (2) Carbon League (mixed teams). Deadline for Entry is **October 1**.

Entry forms can be obtained from the Recreation Office, Bldg. 9711-5, MS-001, phone 4-1597.

Information Division golf tourney set

The ORNL Information Division golf tournament will be held Saturday, October 11, at Cedar Hills Golf Club in Lenoir City.

Players will be divided into groups and four-member teams following the round. First-place team members will receive a dozen golf balls, and members of the second- and third-place teams will receive nine and six balls each.

Prizes will also be awarded for best individual score and for "closest to the pin" on a par-3 hole.

For more information, call Mike Watkins at 4-1001.

Bowling. . .

Y-12 Classic. . .

The All Stars and Splinters are tied for first place after the first night of bowling in the Classic League. Weekly prizes went to the Lightning Balls with a 2950 handicap series. Ernie Lamb rolled a 651 high handicap series. Mike Brown won high handicap game with a 250.

K-25 Tuesday Men's. . .

The City Slickers are leading the K-25 Tuesday Men's League by two points after the first week. Weekly prizes went to J. W. Stapleton, from the City Slickers, with a 697 han-

dicap series. J. Grey, from the Valve Shop, won high handicap game with a 265.

U.C.C. Monday Mixed. . .

Two teams are tied for first place in the UCC Monday Mixed League. They are the Free Spirit and Roadrunners. Weekly prizes went to the Lucky Strikes for high game and series scratch of 700/2037. Job Goodman rolled a 226 scratch game for the men. Churchill Moore had a 557 high series. Phyllis Greene rolled a 213 scratch game for the women. Mildred Gregg had the high series of 514.



TOURNAMENT CHAMPIONS—The Fes Kids took the Carbon Softball Tournament recently at the Park. Kneeling, from left, are Robert Keck, Randy Green, Nancy Owens, Linda Hawkins, Sylvia Hawkins and Kent Dixon. Standing are Mike Borum, Ron Goin, Ken Hall, John Guttery, Ernie Murphy, Dave Post and Jim McMillan. Not pictured were Jackie Nelson and Gloria Borum.



MORE CARBON CHAMPS—The Master Batters took the championship of the Central Division in the Carbon Softball League. Kneeling, from left, are Fred Kitts, Susan North, Eloise Kirk, Hal Jennings, Alan Krichinsky and Gene Jennings. In the back row are Ray Barber, Paul Hatmaker, Sam Shell, Jan Talbot, Gary Owens, Tom Dinsmore, Judy Butler and John Walker.



ATOM TOURNAMENT CHAMPS—The Shifters downed the mighty Snakes in the Atomic Tournament recently. Kneeling, from left, are Mike Johnson, Rod Strand, Larry Johnson and Dave Fritts. Standing are Steve Braden, Ron Jeffers, Robert Puckett, L. C. Wilson, Chuck Jones and Sam Babb.



CARBON LEAGUE CHAMPS—The K-Traitors took the East Division of the Carbon League for Carbide softballers. Kneeling, from left, are Scott Henson, Debra O'Brien, Joe Greenlee, Cindy Wisener, Vickie Langley and Lisa Robbins. In the back row are Mike Allen, Bill Thomas, Wayne McGee, Junior Collins, Dave Hall, Bill Stone, Tom Wilson and Tony Anderson.

Paducah's Judith Brannan earns coveted CPS rating

Judith M. Brannan has received her Certified Professional Secretary (CPS) rating. The local National Secretaries Association honored Brannan's achievement recently with guest speaker James L. Kennedy, assistant dean of the Institute for Certifying Secretaries.

Brannan joined the Paducah Plant in 1977. She was previously employed by the state and federal Occupational Safety and Health Administration, respectively. She is a graduate of Draughon's Business College, presently working towards a BS degree in Business Administration. Brannan has worked in the plant's Engineering Services Department and Mechanical Engineering Department. She is now the secretary for the Process and Materials Technology Department in the Technical Services Division.

Brannan is a board member of NSA and staff sergeant in charge of skill qualification testing in the 807th Combat Support Hospital, U.S. Army Reserve. In this connection, she recently received the Army Commendation Medal, the highest peacetime honor given to a soldier.



Judith M. Brannan

PATENTS

Furn F. Knapp Jr., ORNL, for "123m Te-Labeled Biochemicals and Method of Preparation."

Zane L. Ardary and Carl D. Reynolds, both of Y-12, for "Method for Fabricating Boron Carbide Articles."

Anniversaries

PADUCAH

25 YEARS

Bill T. Kraemer, James E. Smith, Arv W. Gorline and E. Cliff Simmons.

ORNL

35 YEARS

James W. Cunningham, Instrumentation and Controls; Harold C. Davis, Plant and Equipment; Chester Merrifield, Plant and Equipment; Malcolm Richardson, Engineering Technology; and Dowsie Trammell Jr., Employee Relations.

30 YEARS

Richard J. Beaver, Metals and Ceramics; Warren C. Farris, Plant and Equipment; Preston G. Herndon Jr., Instrumentation and Controls; Clarence K. McGlothlan, Quality Assurance; and Melvin L. Tobias, Engineering Technology.

25 YEARS

Dolores H. Dunn, Virginia B. Farris, Peter P. Holz, Eugene J. Lawrence, Thomas W. McKinley Jr. and Joe C. Richter.

20 YEARS

Alan C. England, Rhoda F. Grell and Harry A. Nelms.

Y-12 PLANT

30 YEARS

Wilbur K. Martin, Special Services; Charles E. Walker, General Machine Shop; William P. Moore, Maintenance Division; David A. Jennings, Maintenance Administration; Charlie L. Marlar Jr., Chemical Services; Jack D. Barnette and Immer J. Maples, Utilities Administration; James R. Wells, Alpha 5 North Shop; Foraker Lambdin Jr., Development Division; Ralph Lawson, General Machine Shop; and Arburth M. Maples, A Wing, H2 and F Area.

25 YEARS

James E. McNabb, Charles E. Mills, Arlis M. Stephens and William W. Ivey.

ORGDP

35 YEARS

Clyde M. Cummings and Robert P. Smith, both of the Maintenance Division; and J. C. Sexton, Barrier Manufacturing.

25 YEARS

Charles H. Pride and Richard D. Hobson.

20 YEARS

Harry M. Hays and Gordon B. Child.

September 27 Hootenanny provides 'something for everybody'

What is a hootenanny?

A lot of newcomers at ORGDP are asking that question. Old-timers, however, know the full meaning of the word and the event. Webster has defined it as "a gathering at which folksingers entertain—often with the audience joining in." And that it is, but at ORGDP it's more. It's the annual barbeque-picnic for employees, retirees, family members, friends and guests from the other Nuclear Division plants with activities guaranteed to please those of all ages.

The 17th annual ORGDP Hootenanny is set for September 27 at the Clark Center Recreation Park, with a schedule to begin at 1 p.m.

The children especially are looking forward to this affair because special emphasis is placed on planning these activities. The organized games will continue throughout the afternoon, including bean-bag throwing, frisbee throwing, fishing, rodeo, catch-a-duck, bubble gum hunt and a tug-of-war. Special games are also reserved for toddlers. A puppet show just before supper is served will top off a special day of fun for youngsters. Parents will be interested in a huge sign reading: LEAVE YOUR KIDS HERE. You can relax and know that your bairn are well cared for.

For the grownups there will be bluegrass, rock, clogging, disco demonstrations and street dancing. Also included will be horseshoe, volleyball, basketball, shuffleboard, a golf-putting contest, a hole-in-one contest and the first annual Hollerin'



Contest. Trophies will be awarded for several of these events.

An excellent arts and crafts exhibit is also planned. Such well-known area craftsmen as Helen Cain, Jan Lovelace, Mike Brewer, Fred and Peggy Huddleson, Phil Phillips, Johce McCullough and Charlie Buterini will be on hand with their var-

ied crafts of weaving, ceramics, stained glass, water colors, hand-carved apple characters and rare and exotic cacti.

Make your plans now to have a good time at the hootenanny and enjoy the best barbeque in this neck of the woods! For those kids who don't like it, there will be hot dogs.

Fall picnic planned for Division retirees

Plans have been set for the fall picnic for Carbide retirees, according to Union Carbide Retirees Association officials. The event, set for Friday, October 3, at the Clark Center Recreation Park, gets underway at 11 p.m., with festivities until 4 p.m.

Lunch will be served at noon (sandwiches, tea and coffee will be furnished); all you have to bring is a salad and/or dessert for sharing.

The theme "Country Fair" will prevail, and retirees are urged to bring hobbies, crafts, collections or anything else that can be displayed for the interest of others. Information on these details may be obtained from Helen Bissell, Oak Ridge telephone 483-3205.

Pictures from the spring picnic will be there for inspection; and desks for the sign-up for the Thanksgiving week trip to New Orleans as well as one for membership in UCRA.

Music will be provided by the Sweet Adelines, and the usual hole-in-one golf contest will be staged.

UCRA will also be signing up bowlers for their winter league which will roll on Monday afternoons, beginning soon.

You don't have to be a member to attend the big picnic October 3. You probably will be one, however, when you leave!

'Most significant technology'

(Continued from page 1)

pressure equipment by incorporating a trace amount of fluorescent "tag."

Principal developer is Daniel D. Schuresko of ORNL's Chemical Technology Division. Other contributors include: John E. Mrochek and Wilson W. Pitt Jr., Chemical Technology; Gerald K. Schulze, Michael S. Blair, Martin L. Bauer and R. G. Phillips, Instrumentation and Controls Division; William A. Walker, Plant and Equipment Division; and Robert W.

Wood, Office of Environmental Research, Department of Energy.

Continuous-Ring Particle Blender-Dispenser

This unique apparatus blends into a uniform mixture particulates which differ in mass, density, shape or surface condition and unloads the mixture in a controlled manner without reseggregation of the particulates.

The continuous-ring particle blender-dispenser accomplishes blending, an important manufacturing process, more successfully than products now available. It utilizes three principles in obtaining an improved uniformity in blended mixtures: a cone for the blending operation, the unloading of the particles in one location and the unloading of the mixture in a controlled manner.

The device was designed and developed through a group effort by an ORNL team whose members are: Peter Angelini and Anthony J. Caputo, Metals and Ceramics Division; Donald Kiplinger, Plant and Equipment Division; R. R. Suchomel, Metals and Ceramics Division (now with IBM); and Melvin G. Willey, Engineering Division.

It currently is being used in gas-cooled reactor fuel-rod production and in light-water-reactor fuel-rod fabrication by the "gel-sphere-pac" process (winner of a 1979 I-R 100 award), which involves the formation of dense, free-flowing microspheres and loading of the spheres into metal cladding tubes. In both cases, blending and dispensing of fuel particles are crucial to the final efficiency and utilization of the fuel.

Among other potential uses of the apparatus in commercial blending operations are: production of blended mixtures in pharmaceuticals that utilize small particle sizes; metallic powder blending for power metallurgy processes; controlled dispensing of ceramics, metals or plastics in the form of powder or pieces; addition of color to foods, cosmetics and plastics; and uniform dispersal of microtaggants in explosives or other materials which require tracing from a field sample to the fabricator and date of manufacture.

Uranium Recovery from Phosphoric Acid (DEPA-TOPO Process)

This process has the potential for economically recovering some 3,500 tons annually of dissolved uranium

as a by-product of the chemical production of phosphoric acid, one of the principal ingredients used in manufacturing fertilizer.

At the current market price of about \$32 per pound, this quantity of uranium is valued at approximately \$225 million. It would represent a 20 percent increase in current U.S. uranium production, which totals approximately 18,000 tons per year from the principal source, sandstone ores. The economic and resource recovery benefits will become even more important by the year 2000, when it is estimated that the phosphoric acid produced in the U.S. will contain 8,000 tons of dissolved uranium.

The process is expected to have a significant impact on already scarce supplies of uranium required to fuel the current generation of U.S. and foreign nuclear power reactors. At the same time it removes a radioactive contaminant from fertilizers.

Unlike other methods for recovering uranium normally lost in fertilizer manufacturing, the ORNL extraction process results in few contaminants, has lower chemical reagent costs, and yields a high-grade product. It is called DEPA-TOPO, for the di(2-ethylhexyl) phosphoric acid (DEPA) plus trioctyl phosphine oxide (TOPO) that are used.

Costs of the two-cycle solvent extraction process are competitive now with those for mining uranium from western U.S. deposits. Currently six commercial plants with a total capacity of approximately 2,000 tons annually are in operation or under construction using DEPA-TOPO, and others are under consideration.

Bringing the uranium recovery process to the point of commercial application has been a joint effort of researchers in the ORNL Chemistry and Chemical Technology Divisions. Principal contributors have been Fred J. Hurst of the Chemistry Division and David J. Crouse of Chemical Technology.



THE CONTINUOUS-RING PARTICLE BLENDER-DISPENSER was designed and developed for use in nuclear fuel preparation and other commercial blending operations. Shown with the device are, from left, Peter Angelini and Anthony J. Caputo, ORNL Metals and Ceramics Division; Melvin G. Willey, Engineering Division; and Donald Kiplinger, ORNL Plant and Equipment Division.

Safety Scoreboard

Time worked without a lost-time accident through September 11:

Y-12 Plant	282 Days	9,710,000 Employee-Hours
ORGDP	220 Days	6,762,000 Employee-Hours
ORNL	124 Days	2,889,770 Employee-Hours
Paducah	44 Days	416,000 Employee-Hours

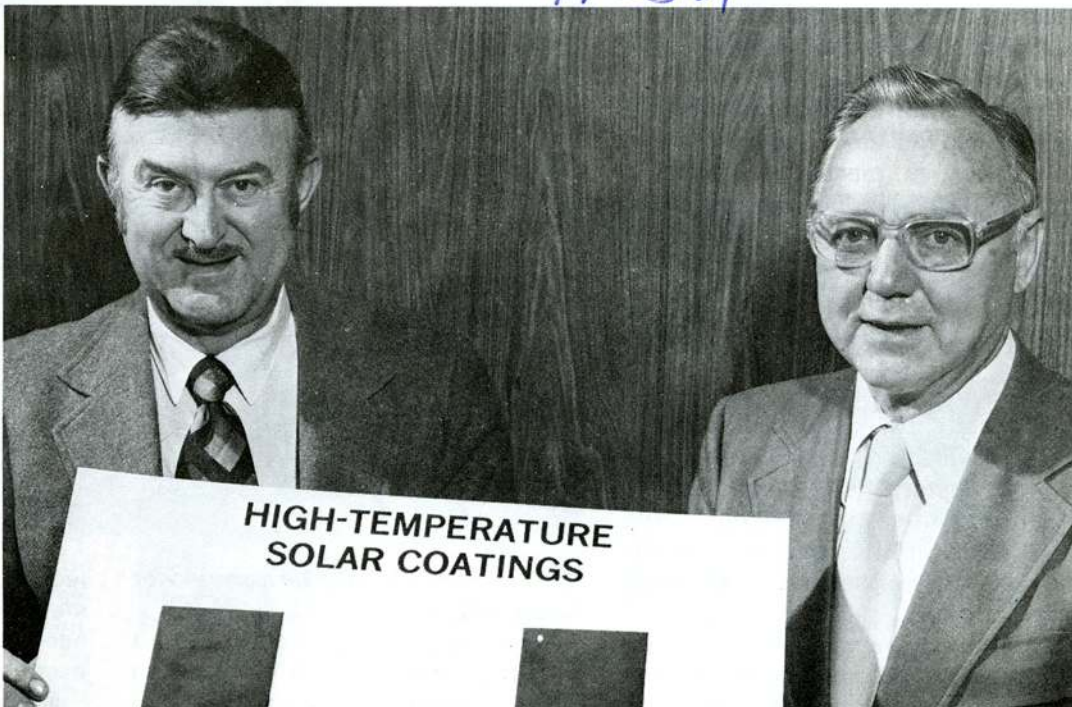


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NUCLEAR DIVISION
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'PLASMASORB' COATING—James M. Schreyer, left, and Charles R. Schmitt, now retired, demonstrate their high-temperature solar energy application compounded from yttrium, boron and erbium and boron. These coatings have reached temperatures up to 2000 degrees Celsius (3632 degrees F).